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ANIMAL KINGDOM

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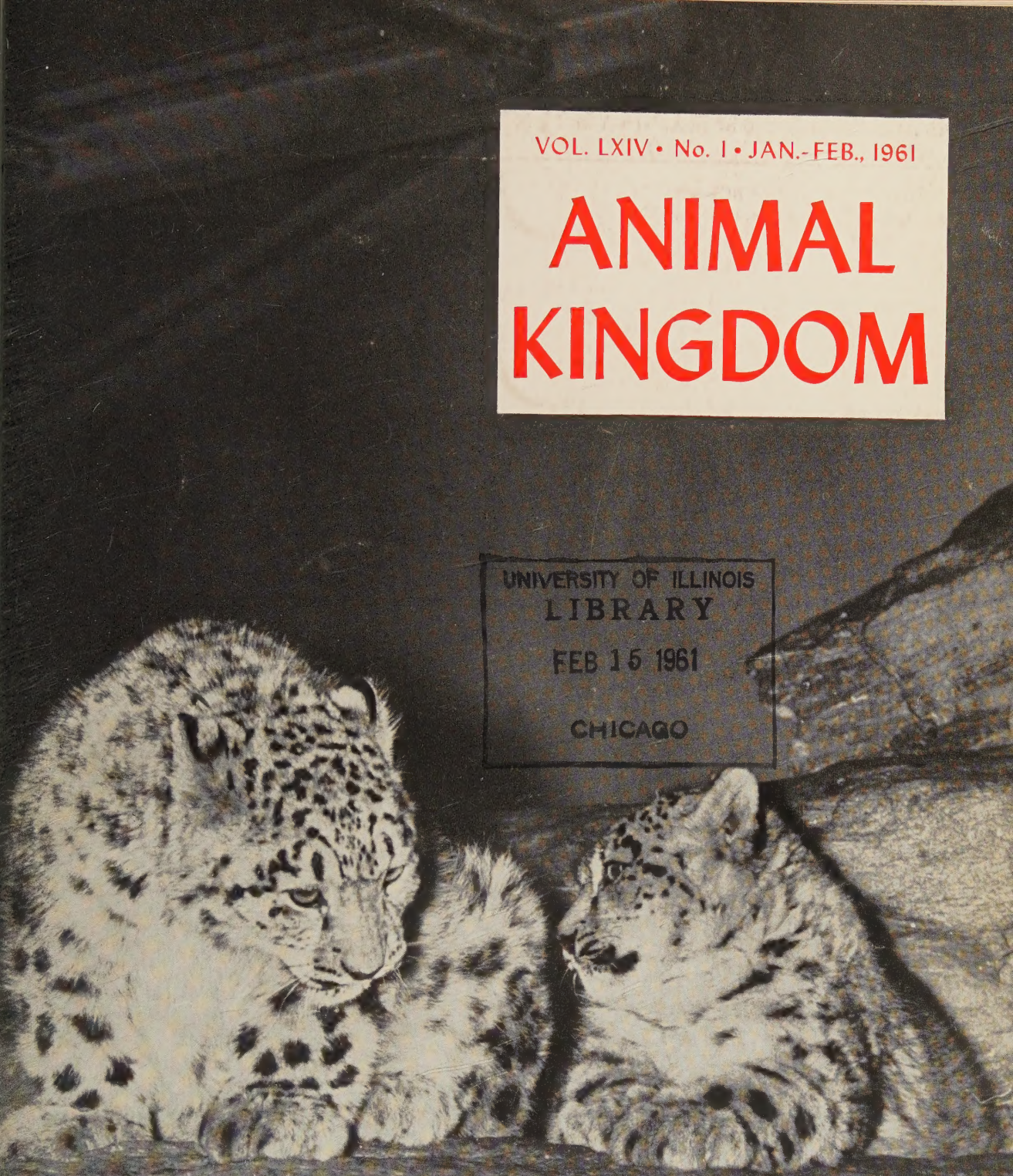

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ANIMAL KINGDOM

Bulletin of the New York Zoological Society

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The Unity of Living Things

OCCASIONALLY ONE HAS AN EXPERIENCE that has the aspects of a *revelation*. The one described below occurred early last year in Africa while camping out in the Mara region, north of the Serengeti Plains in Kenya.

This is a remote area, far from any human habitation, and not even entered by the Masai or their cattle, because it is tsetse fly country which could give the dreaded nagana disease to the cattle or, alternately, sleeping sickness to themselves. This region is one of the few last paradises for wild animals still existing in that vast continent. They were all there – elephants, rhinos, lions, leopards, giraffes, zebras, and a great variety of antelopes and gazelles. Of course the predators were preying upon their quarry, especially at dusk or dawn, and yet there seemed to be no fear or strife. Frequently we saw a pride of lions resting in midday under the shade of an acacia tree, with herds of antelope barely more than a stone's throw away, grazing quietly. A toll would be taken from them on the morrow as it had been "yesterday," and yet there was no fear – a symbolic scene – a unity of living things, the natural order of life and death without fear.

Fairfield Osborn

Dr. Hornaday Had
Some Words for Them—

TWO YOUNG SNOW LEOPARDS IN THE ZOO

By WILLIAM BRIDGES
Curator of Publications

Charles R. Knight's painting of a Snow Leopard from the collection of the Zoological Society.

A FEW WEEKS AGO we carried two gentle young Snow Leopards from the Animal Hospital to their new home in one of the outside bays of the Lion House. For more than a month they had submitted to dosing for parasites, to injections for feline distemper and pneumonia, to repeated handling and close observation, and through it all their equanimity never deserted them. A few throaty growls, perhaps, and a wrinkling of the lips when a stranger came close, but those were for show; a Snow Leopard, after all, has to prove that he is a leopard and not a tabby-cat.

Watching the uneventful transfer from Hospital quarantine to exhibition, someone recalled Dr. William T. Hornaday's capsule characterization of the Snow Leopard.

"The snow leopard," Dr. Hornaday wrote in "Minds and Manners of Wild Animals" in 1922, "is sanguine, optimistic and peace-loving."

Well not always peace-loving perhaps, but rarely as uncompromisingly hostile as, say, the average Black Leopard. Feeling as he did about the temperament and innate harmlessness of *Panthera uncia,* Dr. Hornaday's wrath at the fate of our first specimen is understandable.

A brown and brittle clipping from the *New York Herald* of fifty-six years ago, preserved in a scrapbook that Dr. Hornaday himself probably pasted up, gives some hint of the story, and its outlines can be pieced together from a laconic entry on a record card in our Mammal Department's files and a few references in our publications.

Snow Leopards in the early years of this century were considerable zoological rarities — as, for that matter, they are still today — and the first

two pages of the Zoological Society's *Bulletin* for October, 1903, were devoted to an account of the difficulties we experienced in getting a specimen and its behavior in the Zoological Park. Mrs. Hugh D. Auchincloss, the wife of one of the Society's Trustees, had presented the animal and had paid $900 for it, a price that was considered "costly" then, and would be a prime bargain today.

"Chang," as he was called, was apparently an ideal exhibition animal. Dr. Hornaday wrote in the *Bulletin* that " 'Chang' is as good-tempered as a house-cat, and when fed is as playful as a kitten with a live mouse. Its daily ration consists of a chicken, well cleaned and plucked, offered about six o'clock, when everything is quiet.

"As soon as the food is handed in, the performance begins; and whenever the animal is given the freedom of the huge, rock-furnished cage next door, the sight is most interesting. Up to the top of the rock dashes the Ounce [the alternative name of the Snow Leopard], until the highest point is reached. Often the chicken is thrown high into the air, and as it falls the animal leaps over it. Sometimes it is thrown or dropped over the edge of the rocks, and 'Chang' leaps after it – pretending that it is alive, and trying to escape. After the play is over, the chicken is taken to the water pan, and carefully washed before it is eaten!"

"Chang" came to the Zoological Park on August 1, 1903, at a time when only two other Snow Leopards were on exhibition elsewhere, one in London (which received its first one in 1891) and the other in the Tiergarten in Berlin. The animal was immediately put on exhibition in the bright new Lion House, opened only a few months before, and was one of the proudest possessions of the young Zoological Park, then less than five years old. Our pride was heightened in midsummer of 1904 when Mrs. Auchincloss (at a cheaper-in-quantity price of $1,000) presented us with two more Snow Leopards, both females. For a time, but an unhappily brief time, the three animals lived together in one of the Lion House compartments.

Then, around midnight on July 31, 1904, one of the Snow Leopards escaped through the skylight. The Mammal Department's records say it was the male, "Chang"; Dr. Hornaday, in commenting on the incident in the following year's *Annual Report,* twice refers to it as one of the two females. There is no way now of knowing which version is correct, but the departmental records explicitly state later dates of death for the two Auchincloss females and give the night of July 31 for the demise of "Chang."

Did the night watchman making his rounds discover only two Snow Leopards in the compartment that had contained three the night before, or did he catch sight of a pale body slinking through the underbrush a few hundred feet from the Lion House? We will never know – but we do know that he summoned the police, and a policeman shot the Snow Leopard.

Dr. Hornaday's wrath the next morning can be imagined and savored even at this late date; he was still talking about the incident more than six months later when he blasted the New York newspapers for their "blood-curdling stories"

about happenings in the Zoological Park. As for the Snow Leopard, "that animal," he wrote, "was murdered at midnight by a conjunction of rattled men, when it might easily have been caught if anyone present had done one thing with good judgment."

For the Snow Leopard, as even a rattled policeman should have known, is "sanguine, optimistic and peace-loving"!

But all that was long ago and if any of the participants in that nocturnal leopard hunt are still alive, their scalps are perhaps no longer tender. It is more profitable to learn what hunters and naturalists have had to say about the Snow Leopard in its native Asia, as a means of putting our two lovely youngsters into perspective.

Its alternative name is Ounce, which the dictionary traces through French *once*, Spanish *onza*, Portuguese *onça*, Italian *onza* and New Latin *uncia*. "Ounce" doesn't have much significance to the general visitor to the Zoological Park but "Snow Leopard" is poetically descriptive. As big cats go it is not especially impressive in sheer size; a Snow Leopard with a body 3 feet 8 inches long and a 3-foot tail is quite a big one. But its fur makes all the difference. Smoky-creamy-white, with bold, black-edged rosettes that concentrate to black spots on the legs, the fur is extremely long and soft. The tail droops and curls with what would seem to be excessive luxuriance. But in the bitter winters of the Himalayas heavy fur is no luxury.

What kind of a market exists for Snow Leopard pelts in the Far East nowadays would be hard to find out, but half a century ago there was a thriving trade in tanned skins, and 2,000 a year were said to be brought into Shanghai from the

interior of China. Many still come into the market at Darjeeling.

There are all sorts of estimates of the altitude at which the Snow Leopard roams, but 6,000 feet in winter is apparently about its lowest level and in summer it haunts the wild and broken country above tree-line at 12,000 to 13,000 feet, even to 18,000 feet. There is plenty to eat at those heights – Marco Polo's Sheep, the Argali, the Siberian Ibex, the Burrhel, rodents, even birds. A local name of the Snow Leopard east of Kumaon is *burhel haye,* or "Burrhel killer."

Unfortunately the Snow Leopard does not confine itself to wild game. Too many of the leopards find the pickings good around villages where domestic animals are at liberty and there are tales of its depredations on sheep and goats and ponies. Many of the sportsmen who have written books (and such dull ones!) on their hunting exploits in the Himalayas have recorded search for the Snow Leopard, usually without success. Lt. Col. R. W. Burton told in the *Journal of the Bombay Natural History Society* in 1926 how he made a weary hunt for a worthy Ibex trophy, only to find that a Snow Leopard had killed a much finer animal than he had. Burton is one of the few men to record an attack by a Snow Leopard on a man. At Ramrikcha temple he met a priest whose face was scarred by a leopard.

"A few years previously," he wrote, "a snow leopard got into a hut near the temple, where sheep were kept at night, and killed twenty-one of them. The next evening he was around the place again. The *poojari* [priest] saw that the murderer was after some goats so he went out to put them into a hut. The leopard apparently resented this as he went for the priest and clawed his face! The same night the leopard visited Charong village, a mile away, and attacked and clawed a woman there. The villagers decided that the animal must be killed, so tracked it to where it was lying up among some bushes about half a mile off and, surrounding the place, slew it with stones and sticks without damage to themselves. A plains panther would not have died under these circumstances without leaving his mark on a few of his assailants."

It may have been merely an indication that in earlier days guns and ammunition were not easily come at, but several accounts of Snow Leopard hunts by native peoples mention their habit of killing the animal with stones, especially when it has been trapped in a pit baited with a live kid. Indeed, many of the skins offered for

was an appropriately cold day in ecember when the two Snow Leop-rds were moved from the Animal ospital to a Lion House compartment.

A ring of photographers outside the bay made them hesitate to come out of the carrying crate. Eventually its whole front had to be dismounted.

Nightingale Photo—Newsday

In a few days the youngsters were accustomed to new quarters and a new keeper and were actually willing to accept food from his hand.

sale are said to have been damaged by stones showered on the leopard.

The playfulness of Snow Leopard cubs is mentioned by Col. A. E. Ward in the *Journal of the Bombay Natural History Society* for 1923 in terms reminiscent of Dr. Hornaday's report on "Chang's" behavior at feeding time in the Zoological Park. Ward put a shelf on his verandah for the cubs. "They would jump up and down, time after time, with extraordinary ease. Directly they would touch the verandah floor they would twist round and bound back on to the shelf."

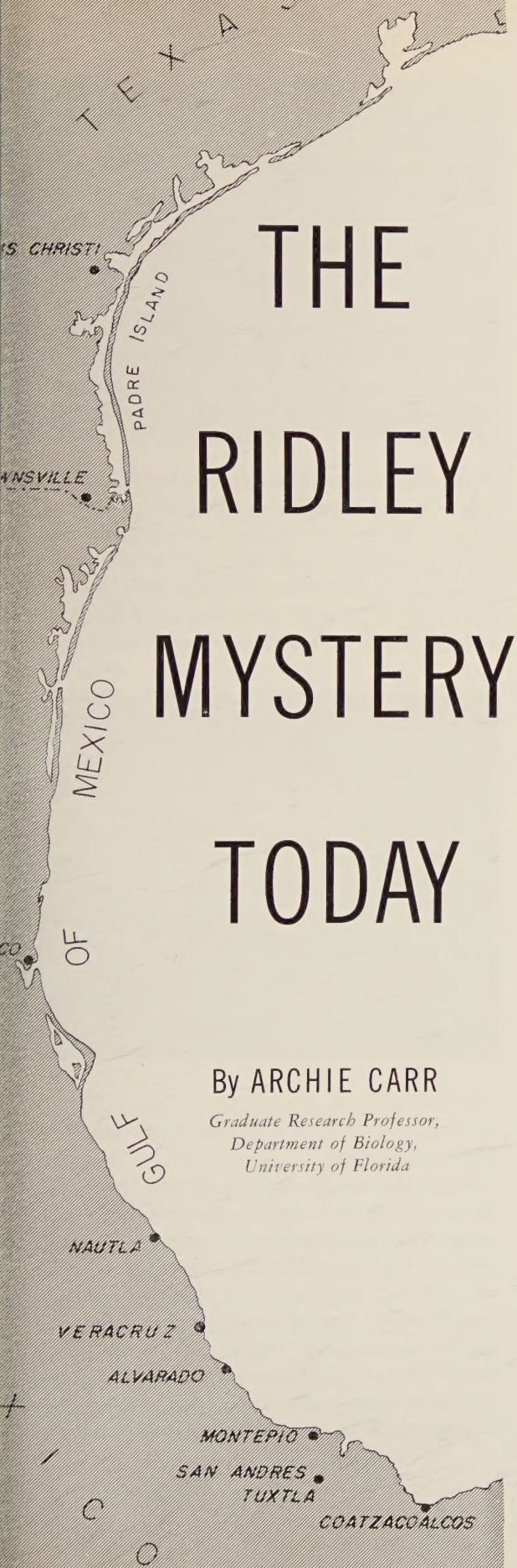
Unlike modern hunters, Ward considered "game" as created only for sportsmen. "In a large enclosure with plenty of shade the Ounce would be a lovely creature to watch," he admits. "Beautiful it certainly is, but it is a most destructive game killer and should be classed as vermin."

Well, our two youngsters are certainly not going to be classed as vermin. They are, we think, brother and sister, born in one of the European zoological gardens last spring. Theoretically they should produce cubs in two or three years, and their management should be reasonably easy, for they have already grown accustomed to their keeper and visitors.

They may never, however, be as "steady" as our favorite Snow Leopard of recent years, the delightful animal known as "Bowser."

We first heard about him in the spring of 1946 when an Air Force Lieutenant wrote that while flying "The Hump" in China he had acquired "a young leopard" that had been a wonderful pet and companion to him. It rode in the airplane with him and was as tame as a kitten. Back in the United States, he had brought his pet along but had found, as so many returning service men did, that pets grow up. Would we like to buy it?

It was not clear from his letter what kind of a leopard this was, and protracted correspondence failed to settle the identification. When we asked whether "Bowser" had a light-colored body with dark rosettes, and whether its hair and tail were unusually long, all he could decide was "Well, more or less." Eventually we asked him to ship the animal to us. It was a Snow Leopard, all right, answering to the name of "Bowser" and just as gentle as its former owner said it was. "Bowser" lived with us to a ripe old age and was all that Dr. Hornaday claimed for the species: sanguine, optimistic and peace-loving.



THE RIDLEY MYSTERY TODAY

By ARCHIE CARR

Graduate Research Professor, Department of Biology, University of Florida

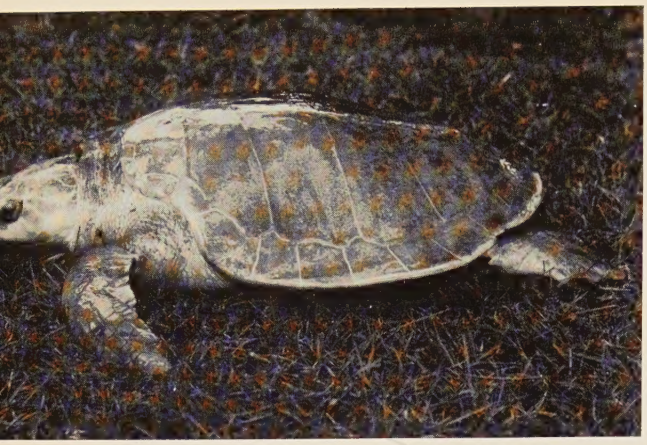
When I wrote "The Riddle of the Ridley" several years ago,* it seemed to me that the mystery this sea turtle's breeding habits would have to wait for its solution until somebody stumbled on masses of Ridleys ganged up in an overlooked place, perversely carrying out their sex rites in secret. But instead of coming in a burst of light the answer is just trickling in as time goes by. We finally know for sure that Ridleys come in two sexes. We know how big they are when they start to breed and what the hatchling looks like. Places where Ridleys go sparingly ashore to nest have been found along the Gulf coast in Veracruz, so we know they are able, at least occasionally, to reproduce their kind. The mystery has dwindled, and what remains to be done is fill in gaps and clear up stray uncertainties, and above all to learn how the skimpy nesting that goes on, in the only places it's known to go on at all, could furnish all the Ridleys that turn up in Florida and along the Atlantic coast, and on down the Gulf Stream in the British Isles.

During August and September, 1960, I made a sea turtle reconnaissance on the Pacific Coast of Mexico, travelling with my family by car from the level of Hermosillo down through Sonora and Sinaloa to San Blas in Nayarit. Partly, the trip was just an effort to learn something about the poorly known sea turtle fauna there. But a more special aim was to broaden my acquaintance with the Pacific Ridley, in the hope that this might help me understand its elusive relative in the Atlantic and Gulf of Mexico. In both ways the trip turned out to be a worth while venture, and its aftermath brought oddly coincidental developments, as I shall tell.†

It is 650 miles from Kino Bay down the coast to San Blas, part of the way along the eastern shore of the Gulf of California, part along beaches of the open Pacific. In all this territory the only turtles I found regularly were the Green (*Chelonia*) and the Ridley (*Lepidochelys*). The Trunkback and Hawksbill were known to the

* "The Riddle of the Ridley," by Archie Carr, *Animal Kingdom*, September-October, 1955.

† Field work partly supported by a National Science Foundation Grant—G-10717.



Left — Side view of a mature female Atlantic Ridle from St. Petersburg, Florida, largest Dr. Carr he seen. It weighed 93 lbs. Right — Mature male Pacif Ridley. Rough patches on the shell are red alga:

Photos by the author

people, but evidently only as stragglers. Nobody seemed to know the Loggerhead at all. The only breeding resident — more probably, a periodic migratory visitor — is the Ridley. Here and there I heard rumors of nesting by other sea turtles, but whenever these stories could be run down they proved to involve confused terminology or localities, or to be completely irresponsible. At Kino Bay, the Green Turtle was abundant, but the fine ocean beach that runs for miles from Puerto Kino to the craggy promontory at Kino Nuevo was strangely unmarked by trails, and nobody there knew anything at all of sea turtle nesting.

Our northernmost nesting observations were made in the Mazatlan area. From there southward all sections of the shore are evidently visited by nesting Ridleys each year. Their coming out is oddly thinspread, though. Nowhere is there traffic to compare with that at rookeries of the Loggerhead and Green Turtle. At Los Serritos, a few miles north of Mazatlan, at the peak of the season and with moon and tide just as the egg hunters said they ought to be to fill ovigerous turtles with hankerings for land, only four turtles nested in three nights on 2½ miles of beach. At Sabalo, between Los Serritos and town, none nested on a mile of shore during the same time. On a mile and a half of beach near San Blas, three turtles nested in three nights; and at Matanchen near the same city, one mile yielded one nest on one night. At a place called Tamborito, just north of Teacapan, a careful search over a mile of high ocean beach that the people told me was a good place for turtles showed no trace of turtles at all. At the one house nearby the farmer told me the only tracks he had seen recently were those of two *golfinas* (Ridleys) he had found nesting two weeks before when his oxen had strayed on the beach.

An observer making an aerial survey of these beaches would get the impression that they are almost completely devoid of nesting activity. The Ridley is so relatively little and light, and the sand of these shores so loose and flaky, that tracks may disappear completely during the day following the emergence of the turtle. A track count made from the air, or even afoot, will usually log only trails from the night before; while at rookeries of the other tea turtles an accumulation of all tracks made since the last heavy rain may be seen. Even taking this into consideration,

however, what I saw in Sinaloa and Nayarit seemed to indicate that nesting activity there is very thinly spread.

A tendency to solitary nesting may be the rule for the Ridley throughout its vast geographic range. During the height of the breeding season in Costa Rica, for instance, a female that my wife and I found on August 10, 1957 (11 P.M.), was the only sign of nesting on two miles of beach between San Isidro and Carizal (near Punta Arenas). In Guatemala, although Ridley eggs were common in the markets during early September, 1959, and although people at the port

of San José told me the turtles often nested on beaches by the town, I saw no tracks in a mile and a half there on September 9. When Charles Bogert and I visited the Guerrero coast in 1952, Ridleys were nesting both at Playa Encantada south of Acapulco and at Pie de la Cuesta north of it. There were eggs in the *cantinas,* and since the people were killing all turtles that emerged, the discarded shells gave a rough idea of the amount of nesting going on. Such evidence as this, and the local consensus seem to show that nesting is everywhere scant and scattered.

During early August, 1960, I heard that large numbers of mated pairs of sea turtles were being seen by commercial and sports fishermen off Guaymas and Mazatlan. Hoping to observe

eft — The Atlantic Ridley shown above, for comarison of its silhouette with that of the Pacific Ridey on the right. The latter shows a characteristic attening of the high, middle part of the shell.
Photos by the author

courtship and mating, I made two cruises — some 200 miles in all — off Mazatlan. On the first trip (August 22) three pairs of Ridleys were seen copulating, and single turtles were abundant between 8 and 15 miles out — not massed in schools, but for miles at a time more numerous than sea turtles I have seen anywhere else offshore. On the second cruise (August 26) turtles were even more abundant. In one section about 60 different individuals were sighted between 12 and 20 miles offshore in two hours' cruising. All these turtles were alone, however, evidently having risen to breathe while feeding. It is hard to reconcile this concentration of sexually mature Ridleys offshore with the feeble show of nesting activity on the beaches.

Most of these turtles were easily approached and hauled aboard with a long-handled gaff hook. The back half of the shell of several of them was dull red, as if bloody from an injury. I have often seen female Green Turtles at mating time bleeding from wounds made by the long grappling nails of the male and thought the red Ridleys might have been injured this way. We caught one of them and found the color to be caused by encrusting red algae.

Stomach contents of the Atlantic Ridley are usually found to consist of crabs. Two Mazatlan turtles taken respectively 10 and 14 miles offshore had eaten nothing but tiny shrimp which packed the gut to distension. The average body length of the shrimp was only about an inch, and when I expressed surprise that a big-jawed Ridley should be able to feed itself on such tiny,

agile prey the fishermen told me that the turtles eat, not shrimp, but *lama* (moss — filamentous algae?) in which the shrimp are thickly entangled. I doubt that. Except for a few brown filaments that seemed to me only broken-off shrimp antennae, there was nothing plant-like in the stomachs at all — only hundreds of the little shrimp, all of which had been swallowed whole.

Part of the mystery that has surrounded the breeding habits of the Atlantic Ridley may merely be a result of its disinclination to congregate in big gatherings at nesting time. I formerly dis-

carded this idea because it seemed to imply that Ridleys were simply being overlooked in the rookeries of the other species. With all the attention these nesting grounds were getting this seemed unlikely. Now, however, an accumulation of stray facts shows that Ridleys nest regularly if scatteringly, along a section of the coast of the Gulf of Mexico hardly used at all by other species, from Montepio, abreast of the Tuxtlas in Veracruz to Padre Island, Texas.

When a recent summary of information on the Ridley question was published, evidence of nesting in three localities in Veracruz (Anton Lizardo, Nautla and the Alvarado area) was available. Widespread verbal reports of nesting by the *lora* or *cotorra* (as the Ridley is called along the Gulf in Mexico) at Montepio were mentioned. Later, during May, 1958, my friend Leonard Giovannoli visited Montepio at what, according to local word, should have been the height of the nesting season. He found there almost precisely what I had found the year before at Anton Lizardo, 100 miles to the northward: the remains of two females freshly killed while nesting, few other tracks on the beach, and the local people so scared by recent threats of turtle-law enforcement that little could be learned from them.

When these nesting records began to turn up in Veracruz my attention was turned to Padre Island — the long narrow sliver of an offshore bar that runs from Corpus Christi to Brownsville, Texas — as a place that ought to be explored for Ridley nesting. Preliminary inquiry among local fishermen there was discouraging. People who appeared to know the coast well were sure that no turtles nested on the island. But in 1959 Mr. Kay Eoff of Brownsville, a graduate student at the University of Florida, found a man who travelled the coast extensively in a beach buggy, and who said that once in a while he saw turtle tracks there. In September, 1960, after fruitlessly canvassing people along the Padre Island

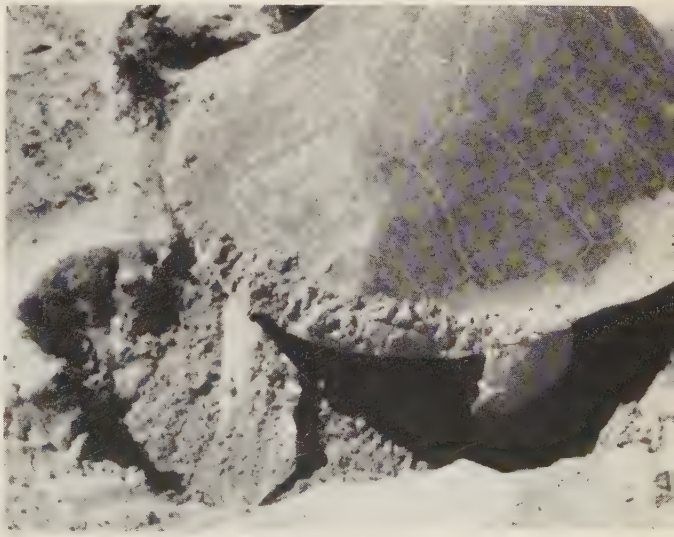
beach, I came upon the shells of five mature female Ridleys displayed for sale in a gift shop in Port Isabel at the southern end of the island. These represented more mature Atlantic Ridleys than I had seen in all my years of searching. Learning that they had been caught by Mexican shrimp boats, I went down to the shrimp docks and showed the shells to the crews. They seemed quite familiar with the kind of turtle represented, called it *lora* or *cotorra*, as they do in Veracruz, and said it was the only common species thereabout and that they usually caught it when trawling close inshore in spring and early summer. They said that when butchered the turtles often were found to have shelled eggs in them.

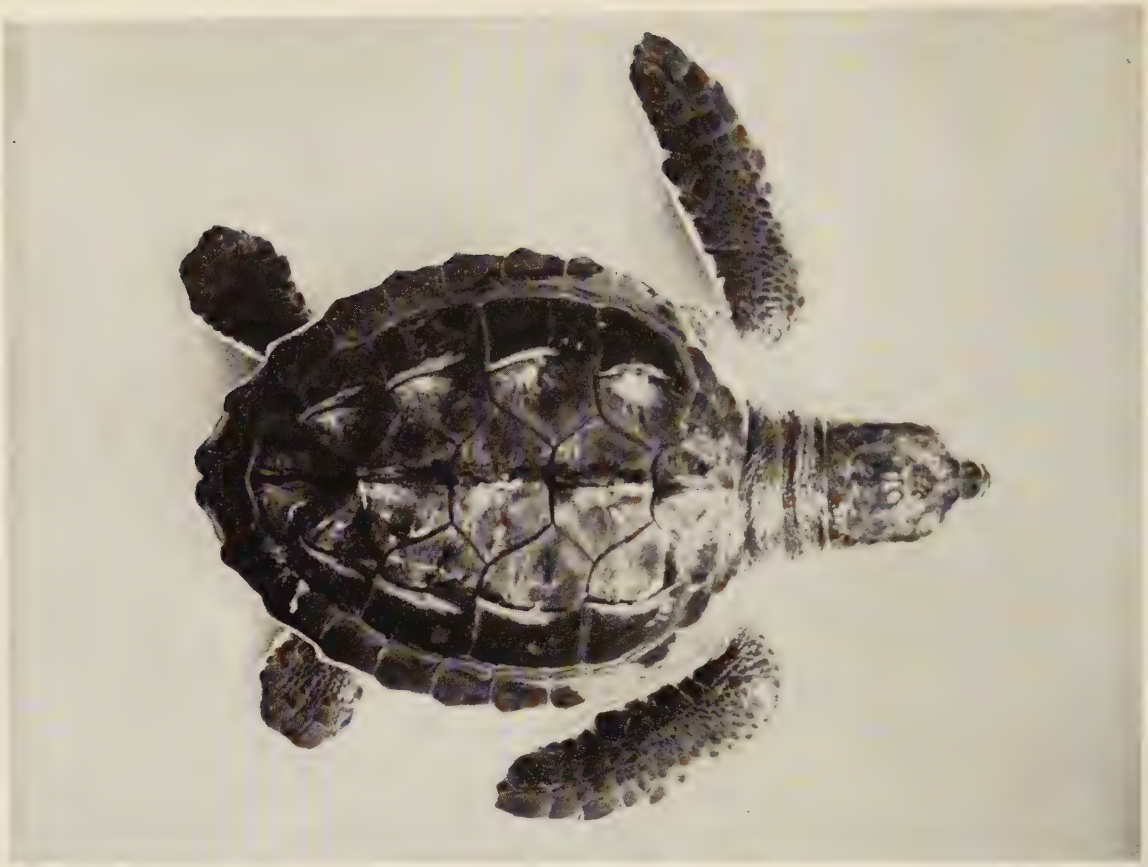
On my return to Florida Mr. Larry Ogren knocked my feet out from under me by calling my attention to one of the New York Zoological Society's papers (Werler, John E., 1951, *Zoologica,* vol. 36, n. 3, pp. 37-48), completely overlooked by me, telling of the observing by Mr. Jesse R. Laurence of Corpus Christi, Texas, of a Ridley nesting on Padre Island. I at once telephoned Mr. Laurence, who is County Engineer. He kindly looked up the pertinent data, together with photographs substantiating the identification, and sent them to me. It turns out that Mr. Laurence found not one nesting Ridley, but two, on trips two years apart, as detailed below.

(1) June 3, 1948, Padre Island, Big Shell Banks, 6/10 mile south of Old Yarborough Pass, which is 25 miles southwest (along Padre Island Beach) of Gulf Beach Park. The latter is 23

These photographs of a Ridley nesting on Padre Island, Texas, were made by Jesse R. Laurence of Corpus Christi and are the first ever made of the Atlantic Ridley's egg-laying.

Photos from Jesse R. Laurence





Eggs from the nest of the Atlantic Ridley discovered on Padre Island were dug up and incubated on two occasions, and a total of seven hatched after 58-62 days. This is one of them.

Photo from Jesse R. Laurence

miles southeast (down Mustang Island Beach) of Port Aransas Pass. A turtle weighing about 80 pounds laid about 100 eggs in a hole some 6 to 8 inches in diameter, 15 inches deep, and "belled out" at bottom, located 50 yards above high tide. Eighteen eggs, dug up and incubated in a bucket of sand, after 58 days produced two little turtles. A photograph of one of these, clearly a Ridley, was reproduced in a newspaper account, a clipping of which Mr. Laurence sent me. This is the first published record of nesting by the Atlantic Ridley.

(2) May 23, 1950. Padre Island, 22 miles south of Gulf Beach Park (see above), "about a mile inside Little Shell Banks." A turtle weighing about 100 pounds laid about 100 eggs, of which 27 were taken to Corpus Christi and put in a basket of sand. Five of those hatched, beginning July 25 (after 62 days). Mr. Laurence's excellent pictures of the nesting turtle are the first ever made.

The trips on which the above observations were recorded were made by jeep, from Corpus Christi, for the purpose of gathering data for a proposed road from Port Aransas to Port Isabel. No other turtles or tracks were seen. The most surprising feature of Mr. Laurence's observations was that both turtles were found nesting in the daytime, an occurrence extremely infrequent among other species. Of hundreds of nesting turtles I have seen, none has been on the beach earlier than twilight or later than gray dawn.

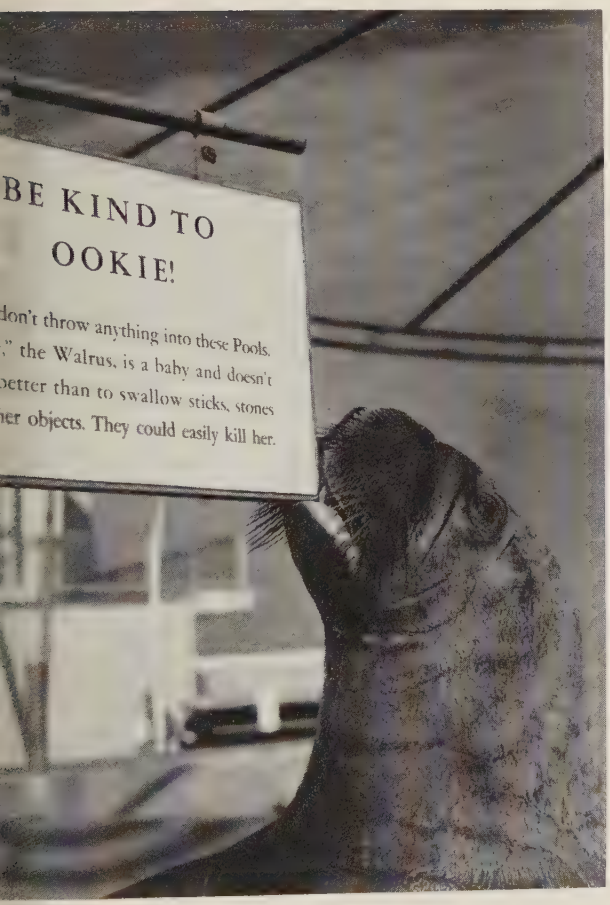
It now seems reasonable to offer as partial explanation of the durability of the "Ridley mystery" these factors: (1) scattered nesting emergences, with no rookeries formed; (2) lightly cut emergence trails, easily obliterated by natural causes; (3) a nesting range comprising little-visited, and in some cases, almost inaccessible, shores, such as Padre Island and parts of the Gulf Coast of Mexico; (4) nesting by daylight.

RAISING OOKIE

By JAMES W. ATZ

Associate Curator,
New York Aquarium

Photograph by Emmy Haas


BE KIND TO
OOKIE!
don't throw anything into these Pools.
" the Walrus, is a baby and doesn't
better than to swallow sticks, stones
ner objects. They could easily kill her.

NOT ALL WILD ANIMALS are wild. Some have personalities as gentle and friendly as those of the most amiable dogs. If anyone doubts this, I challenge him to spend just ten minutes watching the Aquarium's young female Pacific Walrus, Ookie.

As a matter of fact, any healthy young walrus would do, because there never has been an unfriendly captive walrus or one that did not give every evidence of enjoying its unnatural surroundings. Just why this shellfish-eating monster from the wilds of the Arctic, whose only relationship to man for centuries has been as a target for hungry hunters, should so enthusiastically adapt to life in captivity is a fascinating problem in animal behavior. To me it is the most remarkable aspect of this truly remarkable animal.

Although it is true that most walruses kept in zoos and aquariums have been captured when just a few days or weeks old, most animal babies born in the wild never lose a certain skittishness and reserve where people are concerned — a condition that becomes more pronounced as they grow up. This is certainly characteristic of the larger flesh-eaters, including the seals and sealions. Baby walruses, however, immediately take to people with all the abandon of a puppy, and they maintain this affectionate attitude at least through adolescence. Gine and Thora, the only female walruses ever to grow to adulthood in captivity, were friendly thoughout the seven and twelve years they spent, respectively, at the Copenhagen zoo. Even Rowdy, the 12-year-old male on exhibition at the Carl Hagenbeck Tierpark in Hamburg, who was not captured until he was about one year old, has a friendly disposition.

Baby walruses may become particularly attached to the person who cares for them or regularly plays with them, but they never give *anybody* the cold shoulder; captive walruses simply like people! Whenever we want to give a visiting dignitary a special treat, we "introduce" him to Ookie. No matter who it is or what the time of day, Ookie quickly comes to be greeted and petted, eager to make any acquaintance, however brief. It never fails: man meets animal with ob-

vious mutual delight. We daresay that Ookie's whiskers are the best-known and most felt in all walrusdom!

From all this it might be concluded that walruses are the aquatic mammal *par excellence* for zoos and aquariums, and that only their inaccessible habitat in the fastness of the north keeps more of them from being put on exhibition. The truth of the matter is that despite the remarkable way they "take" to captivity, walruses have proved to be one of the most difficult of all large mammals to rear. The problem is to provide the unweaned babies with an adequate diet. In a recent article in *Animal Kingdom,* Dr. Carleton Ray described some of the trials and tribulations he experienced in developing a satisfactory diet for Ookie. But baby foods and formulae are a thing of the past for Ookie now. Since October 27 she has been eating whole shucked clams and raw fish, just like an adult.

The first step toward Ookie's weaning was taken last May when she was broken from the calf-bucket, from which she had been taking her formula of blendor-mixed raw clams, whipping cream and vitamins, and was taught to eat from a pan. Like any baby, she resisted this change in eating habits. When the story of our first futile attempts to get her to abandon the calf-bucket nipple was printed in newspapers as far away as Anchorage, we received many letters and even one telegram telling us how to do it. Many of our advisers were country folk who had had experience with livestock, principally calves. But Ookie was a walrus, with a mind of her own, and we lacked experience as to just how far a young walrus should be pushed. For some time Ookie ate from the pan only if a tankman held the nipple submerged in the formula for her to suck on. Finally, however, on July 19, we hardened our hearts; Ookie must eat by herself. Sure enough, she did not starve herself for long. In nature, some young walruses stop nursing at the age of 18 months. We therefore began to reduce the amount of cream in her formula late in July, when she was about 15 months old. On October 21, all cream was eliminated from her diet without the slightest protest on her part, and one week later whole clams were substituted for chopped ones. Ookie now consumes 40 pounds of clams a day, as well as nearly ten pounds of fish which she has been receiving in gradually increased amounts for the past eight months.

The proof of the eating is in the weighing, and the scales attest to the adequacy of this regimen. At the end of October, Ookie weighed 490 pounds, an average gain of slightly more than 20 pounds each month during the 15 months she had been at the Aquarium. Female Pacific Walruses attain a weight of about 2,000 pounds, however, so Ookie still has a lot of growing to do. Incidentally, the weighing procedure was a nice demonstration of how completely Ookie trusts the men who take care of her. Most sizeable mammals react strongly against anything that feels unsteady under them. Ookie, however, three times climbed upon a makeshift wooden platform that added its rocking motion to the inherent horizontal movement of a weighing machine's platform. Nothing mattered as long as she could nuzzle Head Tankman John Blair's cheek.

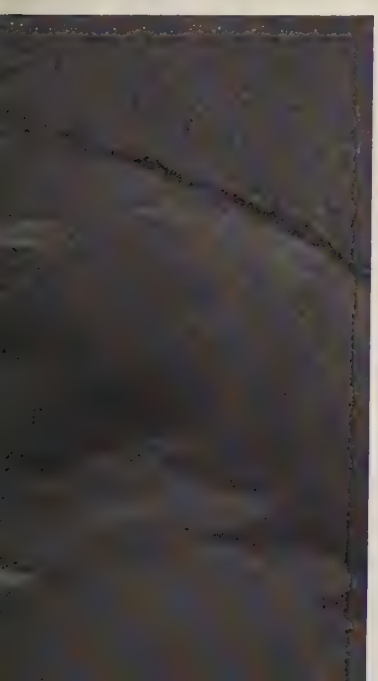
Another aspect of the feeding habits of walruses that has caused serious trouble is their proclivity for picking up foreign objects in the mouth, playing with them and then accidentally or intentionally swallowing them. This unfortunate behavior caused the death of Herbert, the popular Atlantic Walrus at the Zoological Park, nearly eight years ago, and more recently killed another young male in the Munich Zoo. Both died as a result of swallowing a small rubber ball thrown into their enclosure by some thoughtless visitor. Like other walruses we have known, Ookie spends a significant amount of time going over the bottom of her pool with her sensitive mouth and whiskers. Practically nothing escapes her; she often picks up objects as small as a BB shot. Such "vacuum cleaner" actions may be associated with normal feeding behavior during which walruses grub on the bottom for the bivalves that comprise the bulk of their natural food. That other factors may enter into the picture is evident, however, from the regular occurrence of stones in the stomachs of wild seals and sealions and the not infrequent death of captive ones as a result of eating everything from bottle-caps to coal. Why this should be, we do not know, for some seals and sealions feed on fish and squid and do not have to grub food among foreign objects on

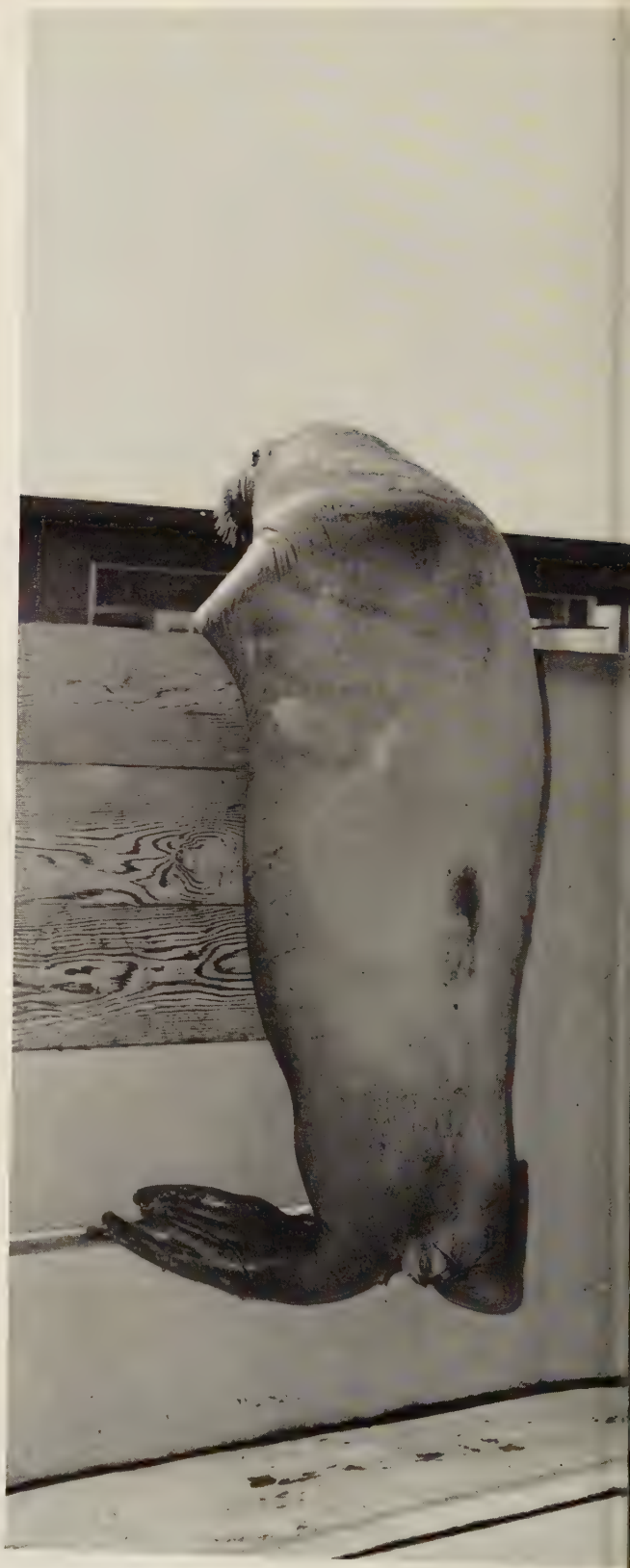
(*Text continued on page* 21.)

Ookie has a broad streak of gregariousness in her nature and if she can't be with her keepers or visitors, she seems to get great satisfaction from looking at them and "talking" to them.

A white rubber ball has been Ookie's favorite plaything ever since it was given to her last summer. If it pops out of the water and goes over the wall of her pool, her outcries bring a keeper to retrieve it, and if it pops onto her haulout platform, invariably she rolls it back into the water, for she wants it near at hand, whether she is playing with it or not. She can manipulate the ball with either her front or hind flippers, and often pushes it around the pool with her nose. Sometimes she spits a jet of water 3 feet in the air (below). This seems to be a walrus habit.

Photographs by Emmy Haas





e wall in the two pictures at the left is 57 inches high — but kie could climb it. All she needed was a chance to get her ppers over the top. Eventually the Aquarium had to put still nother board atop this gateway, for there was danger of her lling and hurting herself. In the two photographs at the right, e wall is 38 inches high. It presents no problem at all. She rls her hind flippers under her body and simply "walks" up e wall. When the bulk of her 500 pounds projects far enough, avity does the rest. She doesn't mind the bump when she falls.

A 7-foot wall finally foiled the climbing walrus. It is high enough to discourage her from even trying to climb it but it does disrupt the open appearance of the walrus-and-seal Tripool.

the bottom. So far, Ookie does not seem to have swallowed many of the sharp, toxic or otherwise noxious objects put into her pool by foolish visitors — those who escape our patrolling tankmen or who fail to heed the special labels that warn of the danger to Ookie from such impulsive acts as tossing her a "plaything." Whenever any of us pass Ookie's pool, we always look to see whether some object is there that doesn't belong, or whether Ookie appears to be mouthing something. Ookie, trusting soul that she is, never fails to come when called, so that we can take the offending object away from her. Of course, we then always play with her for a while — in order to compensate for the loss of her dangerous plaything.

Our young walrus enjoys people in the mass as well as individually. The larger and noisier the crowd around her pool, the better she seems to like it. She swims back and forth, belly-up in one direction and belly-down the other. She bobs out of the water as far as she can and slaps the surface with her flippers, splashing her admirers — not, I am sure, with the intention of getting people wet, but because of the flurry of excitement that her unexpected maneuver evokes. School children seem to be her especial favorites, probably because of the noise and commotion they make. She has become a proficient "spitter" and can send a graceful jet of water several feet into the air while swimming at the surface on her back. Ookie's latest toy is a nine-inch white rubber ball. At first she handled this quite awkwardly, but now she expertly manipulates it with snout or flippers, on land and in the water. On occasion, when the spirit moves her, she will retrieve her ball like a dog and push it up the side of her pool so that a favored visitor can toss it across the water again.

Ookie has also become expert at the scaling of walls. For some time she had been getting up on her hind flippers and hanging over the 37-inch walls that separate her haul-out from those of the seals in the other two units of the Tripool. She would often tip precariously on top, her hind flippers completely off the ground, but eventually she always backed down, apparently deterred by her inability to touch solid ground on the far side. We realized that sooner or later she was going to get over, but we knew that no immediate harm could come either to her or the seals, so we waited, hoping for the inevitable to be put off as long as possible. Saturday, August 27, was the day. I happened to be the staff officer on duty and was in the middle of my dinner when a combined roar and laugh from the crowd told me that something out of the ordinary had happened. Ookie was in the seal pool and lazily chasing the inhabitants, who were streaking around in a panic. The only danger was that she might accidentally corner a seal and that it would turn and bite her. Tankman Pedro Ponciano opened the gate between the two haul-outs, coaxed Ookie back to her own quarters and shut her in. Then Ookie really surprised us. Tankman Ponciano had been gone only two or three minutes when she was over the wall again and after the seals. This time mere coaxing didn't work, and it was not until Ookie had chased two of the seals into her own unit that we got her back home. But the minute our backs were turned, she was in with the seals once more. Again and again and again. After an hour of this I remarked, half in fun, half in exasperation, that it was pretty sad when the animals were smarter than their keepers — at which the crowd laughed just a little *too* heartily. Finally, with the aide of Maintainer Al Barone, several planks, a large piece of plywood, a heavy shipping box and some rope, Tankman Ponciano and I rigged up a temporary barrier and demonstrated our superiority over young Ookie. I know she couldn't have slept sounder that night than I did.

But I was not yet through with Ookie's penchant for climbing. Eleven days later, just as I was about to leave for home in the evening, Ookie climbed over one of the Tripool walls which had been raised to an unclimbable (we thought) 49 inches high by means of two six-inch planks lashed on top of it. This was serious, because now Ookie would be able to climb the outer walls of the Tripool and escape altogether. Still worse, she might hurt herself when she toppled down from a wall more than four feet high. This time Maintainer Joe Cadorette and I managed to confine our agile walrus by putting her into one of the pools and then letting almost all of the water out. Subsequently Ookie demonstrated that she could surmount walls that were 57 and even 66 inches high, although we did not

Vigilant attendants retrieved these objects from Ookie's pool in the course of a 12-months period. Any one of these items might have killed her if she had picked it up and swallowed it.

allow her to carry through her intentions. This is a remarkable feat for such a heavy animal, less than 70 inches long and lacking hands or legs. The secret lies in the tremendously powerful muscles of her neck and front flippers. If she is able to hook her chin over a wall, she can pull herself up enough to get her flippers over it. With her flippers firmly gripping the wall, she curls the rear part of her body under her — lobster fashion — braces her rear flippers against the vertical surface, and inches her way up and over.

On September 8, we moved Ookie into the Oceanic Tank with Olaf, our 4½-year old adolescent Atlantic Walrus. One reason for doing this was Ookie's ever-increasing ability to climb. Another was our desire to have the two animals get acquainted. Eventually we hope to raise baby walruses, and although it will be at least three years before Ookie can become a mother, the earlier she and Olaf learn to get along together, the better. We felt, too, that they would be easier to control at this stage of their development, should they have any difficulty adjusting to each other. At first things went peaceably enough with neither walrus paying much attention to the other. About twelve hours after being introduced, however, it seemed as if Olaf suddenly realized that the new individual in his tank was indeed another walrus. From that time on he gave Ookie very little rest. He did not try to hurt her, but his attentions were persistent and, to her, eventually exhausting. For 46 hours we kept them under constant surveillance, and periodically intervened to give Ookie a rest. At the end of two days it was clear that the disparity in size between them was too great. Olaf had more than a thousand-pound advantage over Ookie and was more than a match for her, strong as she is.

Today Ookie is back in the Tripool, but the walls of her enclosure have been increased to seven feet in height. We are now planning an exhibit especially designed for walruses. In it we shall be able to put Olaf and Ookie together — and separate them at will. Then, someday, we hope to make zoological history by exhibiting the first walruses ever bred in captivity.

BIRD-BANDING IN THE ARIMA VALLEY

Dr. Snow sets his mist-nets in the forest outside of Simla. The sunlight is making them rather conspicuous in this glade; best results are obtained when the nets are set in shadows.
Photo by Russ Kinne

By DAVID SNOW

Resident Naturalist,
Department of Tropical Research

In June of 1958 my wife and I began trapping and banding birds at the Zoological Society's Field Station in the Arima Valley of Trinidad. The primary aim was to color-band our local population of manakins, small forest-dwelling birds whose communal displays I was studying, but we found that we caught so many other species as well that we soon extended our program to cover as far as possible all the local birds. We have now been trapping regularly for nearly 2½ years. Such a program produces more and more interesting results the longer it is continued.

Like so many other bird-banders, we use Japa-

nese "mist-nets." Mist-nets are made of black nylon thread so fine that the birds usually do not see them and fly straight in. Threaded through the nets, which are about 9 feet high and up to 40 feet long, are a number of thicker and tighter horizontal strands. When a bird hits the net the fine and very light mesh gives under the impact; the bird falls, and is held in a pocket against one of the tighter horizontal strands. There it hangs helplessly until removed. Mist-nets are almost completely harmless to small birds; in fact we have not had a definite case of a bird being injured by flying into a mist-net, though some, such as swifts, fly in at a considerable speed.

Catching a bird in a mist-net is easy; extracting it is sometimes a different matter. Birds with short or weak legs such as swallows, flycatchers and warblers are usually easy; they hang passively and do not get their legs badly tangled. Others, such as the Black and White Manakin (*Manacus manacus*) and the Bananaquit (*Coereba flaveola*), sometimes struggle and claw up masses of net, perhaps twisting themselves round a few times in the process, and occasionally even managing to pass, with all their coils round them, bodily back through a single mesh of another part of the net. These birds demand much patience, often at times when heat, rain and mosquitoes are combining to exhaust what little patience one has left. In extreme cases we have to resort to scissors and snip a strand or two of the net; then the bird will usually come free quite quickly, dishevelled but none the worse for the experience.

We began by setting our nets along a path just behind our house, between two pieces of bushy cover at the edge of the secondary forest which abuts on the garden. Our catches here are often good and this has remained one of our main trapping stations. In the afternoons we often move the nets a little way up the stream which flows down past the house, and set them across the stream at places where the water is shallow and birds come to bathe. Especially on hot dry afternoons these bathing places are among the best places for catching good numbers of birds in a short time. But not all the species bathe in streams; some, for instance, bathe up in trees in water collected on leaves or in bromeliads. Thus one must study a bird's ecology and behavior and place the nets where the bird will come down low enough to go into them. Or if one is after a special bird which keeps high in the trees, one can hoist the nets up into the trees, as Bill Conway did to catch the Mossy-throated Bellbird (*Procnias averano*) in Trinidad last year (see *Animal Kingdom*, May-June, 1959), but this is a slow and skillful operation and for our general trapping program we have set our nets at ground level.

Each bird we catch receives a good deal of attention in addition to its band or bands. First, having noted as a matter of course the date, time of day and locality, we put the bird in a cloth bag of known weight and weigh it with a fine spring balance. By accumulating large numbers of weights we hope to find out whether tropical birds, like northern birds, show regular seasonal changes of weight due to deposition and loss of fat, or whether, as is perhaps more likely, they remain at a constant weight throughout the year. We shall also be able to test for diurnal changes in weight, for differences according to age and sex, and perhaps for other points that we have not yet thought of.

A Rufous-breasted Hermit hangs in the mist-net is sometimes difficult to disentangle a small b but the capture does not harm them; of the hundre Dr. Snow has caught in nets, none has been injur

Photo by Russ Kinne

We then examine the bird's plumage, noting whether it is adult or juvenile, male or female, and seeing whether or not the bird is moulting, and if so, what parts of the plumage are being replaced. We measure the wing, which is the best standard measurement of a bird and one that often indicates the sex in species in which the sexes do not differ in color. In some species that show individual variation we note the color of the eye or beak.

Then we band the bird. What bands we use depends on the species. If it is one which we are studying in detail, we give it a combination of colored bands which enables it to be distinguished as an individual when it is seen in the field. If it is a local breeding bird of some other species, we give it a numbered band so that we shall know it again when we retrap it. Finally, if it is a migrant, we give it a U. S. Fish and Wildlife

Service band, so that its recovery can be reported if it is recaptured or found dead in any part of the world. Having done everything, we release the bird at or very close to the spot where we caught it.

After its release, the newly banded bird usually flies to a perch near by, preens vigorously and pecks a little at the strange band on its leg. But it soon accepts the minor encumbrance, and in fact seems not to be handicapped by it at all. There is no evidence that well-fitted bands jeopardize a bird's further expectation of life.

One of the most striking things we have found is the great abundance of individuals living in a small area of forest. So far, trapping just behind our house and a little way up the stream in the forest beyond, we have trapped 469 different Golden-headed Manakins (*Pipra erythrocephala*) and 229 different Black and White Manakins (*Manacus manacus*). We still have not come near the end of the Golden-headed Manakin population as we still trap far more new birds than "retraps." For instance, the last page of our trapping book records 27 new ones and only 5 retraps. For the Black and White Manakin the picture is rather different. For some time now most of the birds we have trapped have been retraps. We do not yet know whether this difference is due to the Golden-headed Manakins simply being more abundant than the Black and Whites, or to their ranging more widely in the course of their daily activities.

Another species that turns out to be surprisingly abundant is a small and inconspicuous flycatcher, the Ochre-bellied Flycatcher (*Pipromorpha oleaginea*), of which we have caught 110 individuals. This may be contrasted with our catching one individual, on one occasion, of a

closely related species, the Olive-striped Flycatcher (*Mionectes olivaceus*). The ratio of 110:1 probably reflects fairly accurately the relative abundance of these two species. We often see the Ochre-bellied Flycatcher and find its nests, but we have never seen the Olive-striped Flycatcher, except for the one individual trapped.

Some of our local birds, though they probably never leave Trinidad, are seasonal in their occurrence in the Arima Valley. Thus the seed-eaters are not common with us in the dry season, but when the grasses begin to seed, shortly after the wet weather begins in May, they move up into the valley and start to nest. We have only trapped the Black and White Moustached Finch (*Sporophila bouvronides*) and the Gray Seed-finch (*S. intermedia*) in June, the Blue-Black Grassquit (*Volatinia jacarina*) in June and August, and the Lesser Thick-billed Seed-finch (*Oryzoborus angolensis*) from May to October. Other species we trap in all months but much more at certain seasons than others. Thus the ubiquitous Bananaquits, perhaps the most numerous birds in Trinidad, finish their moult in August and then become very active and sing a great deal. At the same time some of the forest trees, on whose flowers they feed, begin to bloom. The Bananaquits move up the valley and enter our nets in greater numbers than at any other time. The Rufous-breasted Hermits (*Glaucis hirsuta*), common hummingbirds of the forest, take up their territories along the forest streams early in the year; in January and February many of them go into our nets as they move up the valley to their favored nesting habitats.

We do not catch many northern migrants. Trinidad is rather on the edge of the main South American wintering area for North American warblers and other migrants, and only a few species are at all common. But our few captures have produced a most interesting record. A Northern Waterthrush (*Seiurus noveboracensis*), caught and banded on December 10, 1958, flew into a net placed in the same position almost exactly a year later, on December 23, 1959. This appears to be the first time that a northern migrant wintering in the tropics has been proved by banding to return to the same winter quarters in successive winters. That the bird was not on passage is indicated by the fact that we recaught it on April 3, 1960. We would give a lot to know by what feat of navigation it returned. Did

ft — A color band is fitted onto the leg of a female ack and White Manakin, after which it will be eased. The color distinguishes this particular rd when it is seen again in the wild. Above — nother step in the study is to place the bird in a th bag of known weight and then weigh it with sensitive spring balance. Right — The wing of aimard's Elaenia is measured. This is an un- mmon flycatcher occasionally caught in the nets.

Photos by Russ Kinne

its long sea-crossing over the Caribbean bring it directly to the Arima Valley, or did it hit the coast many miles to the east or west, and home by stages to this forested valley which looks so like all the other forested valleys of the Northern Range of Trinidad?

Among the most interesting of the results of a long-continued trapping program is the knowledge that it gives of the lives of individual birds. Many individuals have been caught and recaught several times. Of the color-banded manakins, many have been seen at other times, displaying at their courts, nesting, feeding and bathing. We are beginning to learn, for instance, how long a bird takes to acquire its adult plumage, how much of the year is occupied with the moult, how the date at which its moult begins may vary in successive years, and many other things. For the Black and White Manakin we have the most complete data. For example we have been able to follow one individual male from the egg and through its nestling period (banding it when 9 days old), have recaptured it as an independent juvenile, have watched it in juvenile plumage hanging about round the edges of a display ground and making its first tentative jumps, and

have then seen it in full male plumage, some fifteen months after leaving the nest, trying to acquire a court among the other adult males at the same display ground.

We would not be without our mist-nets now. Though exasperating at times, they give us knowledge that could not be got in any other way. For many kinds of field study they rank with binoculars and bird-bands as the ornithologist's most valuable tools.

News from the Conservation Foundation

Arctic Wildlife Range

In 1952 the Conservation Foundation and the New York Zoological Society jointly sponsored an ecological reconnaissance of wildlife habitat in Alaska. The study was undertaken by Dr. A. Starker Leopold and Dr. F. Fraser Darling and resulted in publication of the book *Wildlife in Alaska.* That book contained the following recommendation: "The Eastern Brooks Range sloping down to the Arctic plain on the North and to the Yukon Valley on the South would be an ideal Arctic Wilderness area. Not only would such a reservation serve to maintain a sample of the primitive northland for posterity, but it would be a base for long-term ecological studies of the arctic flora and fauna."

In his foreword to the book, Fairfield Osborn stated: "An Arctic Wilderness area should be set aside in the Brooks Range of Northern Alaska to protect an adequate reserve in the wonderful primitive region for posterity."

In 1956 the two organizations jointly sponsored an exploration in the Brooks Range by Olaus and Mardie Murie, who were accompanied by H. Robert Krear as photographer. Their report again recommended establishment of an Arctic Wildlife Refuge in the Brooks Range and specified desirable boundaries therefor. The film taken on this expedition, showing the wildlife and wonders of the area, was assembled from the Murie-Krear footage and shown widely in Alaska and the United States as a plea for establishment of the Refuge. The film was entitled "A Letter from the Brooks Range." Another and expanded version of this film was subsequently issued by Thorne Films under the title "Arctic Wildlife Range." Olaus Murie, himself, appeared before many sportsman's groups and representatives of the Alaska legislature advocating establishment of the Refuge, and Dr. Osborn together with the representatives of a number of other conservation organizations urged the Secretary of the Interior to set aside the refuge by executive order.

A bill was introduced in the Congress in 1959 and 1960, and although it was favorably reported, it failed in passage in the closing days of the Congress. With the continuing encouragement of conservationists throughout the country, Mr. Seaton, the Secretary of the Interior – who had himself always warmly believed in the value of this great reservation – took action. As one of his final acts before the change of administration he issued the desired executive order. The Arctic Wildlife Range is now a reality.

Ecological Film

Now completely underwritten by gifts totalling $40,000, the ecological film, "The House of Man," is in active production under the supervision of George Brewer and John Gibbs.

The film will deal with the availability and use of the earth's natural resources and with the changed and changing environment caused by the world's rapidly expanding populations and man's growing mechanical and technological power.

The story will be told essentially in terms of the North American scene but will also make clear that today's vast environmental changes are occurring at a constantly accelerating pace in other countries and cultures.

Briefly Noted

Fairfield Osborn, with the topic of "Man, Nature and Faith," addressed some 400 members of the Church Club of New York at their annual meeting at the Plaza Hotel on January 23 . . . Frank Darling, at the invitation of the Sudanese government, will spend six weeks in February and March in making an ecological reconnaissance of the Republic of the Sudan and advising on the setting up of a national park and game reserve there. He will be accompanied by George Merck . . . A luncheon for Professor Jean Baer, President of the International Union for the Conservation of Nature, was given by the Foundation on January 12 at the University Club. Guests included Montgomery Bradley, Ernest Brooks,

William Vogt, Carl Gustavson and Richard Pough . . . "The Impact of Recreation on Land Resources" was the title of a talk by Samuel H. Ordway, Jr., before a meeting organized by the Conservation Committee of the Garden Club of America on January 10 . . . Wallace Bowman served as Chairman of a session on Rural Land Zoning at the annual meeting of the American Association for the Advancement of Science, held in New York December 27-30 . . . On December 29 a luncheon for some of the members of the Advisory Council of the Conservation Foundation was held at the University Club. Advisors Firman E. Bear, Harold J. Coolidge, Edward H. Graham, Charles M. Haar and Paul B. Sears, Associate Richard L. Meier, and Raleigh Barlowe, were welcomed by Dr. Osborn for the Foundation . . . Belmont Pitkin represented the Foundation at the Fourth Annual Conference of the Organization of Cornell Planners, held in Ithaca November 18-19. The topic for the meeting was Open Space and the Metropolis.

BEHIND THE SCENES

NEWS AND NOTES OF THE ZOOLOGICAL PARK, THE AQUARIUM AND THE DEPARTMENT OF TROPICAL RESEARCH

Exuma Cays Land-and-Sea Park Nears Operating Basis

The first real land-and-sea park, at Exuma Cays in the Bahamas, will soon be on an operating basis. Dr. Carleton Ray of the Aquarium staff brought back word of its progress after attending the annual meeting of the Bahamas National Trust.

The Zoological Society sponsored a survey of Exuma Cays in January, 1958, and a year later the Bahamas Legislature created the National Trust, of which Dr. Ray is secretary.

Two other areas are now being considered: Inagua Island, the home of West Indian Flamingos, the Bahamian Parrot and various terrestrial and aquatic reptiles, and Athol Island, to be developed as a public camping ground.

Argentine Journey May Lead to Collecting Expedition

Certain parts of Argentina are extraordinarily rich in bird life, yet comparatively little collecting is done there for the benefit of zoological gardens. At the end of the year Associate Director William G. Conway made a 1,400-mile journey through Argentina which may result in a major collecting expedition at a later date.

He traveled south from Buenos Aires to the great pampas, to Bahia Blanca, and over the Patagonian plateau to the Andes at Zapala, at that point turning south to the Argentine lakes region, particularly Lake Nauel Huapi. He left New York on December 16 and returned on January 8.

The trip was made essentially for scouting and photographic purposes, and will be reported upon more fully in a later issue of *Animal Kingdom.*

Other members of the staff have also been traveling. On February 1 Staff Photographer Dunton gave a talk before the Canadian chapter of the Biological Photographic Association at the Montreal Neurological Institute, speaking on "Biological Photography in the Zoo and in the Field."

Dr. Charles R. Gandal attended the annual conference of the Veterinary College at Cornell University early in January, and showed a new motion picture we have made, "A Field Technique for Pinioning Birds."

Society Participates in AAAS Meetings

The American Association for the Advancement of Science held its annual meetings in New York during the week between Christmas and New Year's and several members of the Society's staff took part.

Dr. James W. Atz of the Aquarium was Local Chairman for the Ecological Society of America. Dr. Herndon G. Dowling participated in a sym-

posium on "Evolution and Dynamics of Vertebrate Feeding Mechanisms." William Bridges was a member of a panel which discussed "Writing, Illustrating and Publishing for the Nature Audience" before the American Nature Study Society.

Two papers from the Society's Genetics Laboratory were presented, on fish bred in the Laboratory.

Dr. John Tee-Van was a member of the Honorary Reception Committee for the meetings, and on several occasions groups of scientists and their families visited the Zoological Park and the Aquarium, where special tours were held for them.

Javan Rhinoceros Hornbill Record

A longevity record that apparently has not been exceeded anywhere was set by a Javan Rhinoceros Hornbill in the Zoological Park's collection. At the time of its death on January 5, it was within 6 days of being 24 years in the collection, having come to us on January 11, 1937. Our only previous Javan Rhinoceros Hornbill arrived in 1921 and died in 1926. It will not be easy to obtain a replacement from Java or Sumatra.

New Zealand's Rare Tuatara: Now Five Years on Exhibition

On January 21 we noted with satisfaction that our Tuatara had been on exhibition for five full years — the longest period that any Tuatara has survived in the United States. A few others have been seen in American zoos, but most of them died in about a year.

The Tuatara (*Sphenodon punctatus*) came as a gift from the Department of Internal Affairs of New Zealand, which watches over the animal. It is strictly protected. Although it looks much like a lizard, the Tuatara is actually a rhynchocephalian, the only member of its Order.

Because of the reptile's rarity (it is found only on a few islets off the coast of New Zealand) the Department of Internal Affairs keeps in touch with the institutions that have been permitted to exhibit specimens. Dr. Dowling's latest report to the Department said:

"It has been kept in a small exhibition case about 2 feet by 2 feet, with a water dish, a rock and a small log to rest upon. The exhibit enclosure is within a refrigerated section of the Reptile House and the temperature has been maintained between 65 and 74 degrees Fahrenheit. Although the temperature in nature appears to be lower than this, we find that our specimen is more active, in better color, and feeds more regularly at these higher temperatures. Humidity is high in the enclosure.

"The water of the enclosure is changed each day and the Tuatara is offered a baby mouse each day. This food is ordinarily accepted. Our specimen is quite active, barks occasionally, and sometimes attempts to bite when handled.

"On five different occasions, however, it has gone into an apparent state of shock shortly after feeding. The floor of the mouth and tongue appeared to swell, mucous fills the oral cavity, and the animal experiences difficulty in breathing. Under these circumstances, we immediately place the Tuatara under oxygen treatment and maintain it on oxygen for two to six hours. It appears to recover fully under this treatment. We still do not know the cause of these attacks. We have suspected that it is an allergic reaction to some substance obtained along with the food, and have set up elaborate procedures of cleanliness in order to avoid this. Even with these precautions, however, the attacks occur on an average of about once a year."

Dingo Pups Were the First Babies of the New Year

Eight pups were born to our prolific pair of Dingos, or Australian Wild Dogs, on January 1, and while we are glad to have them, for we want a young pair for the future, the "left-overs" pose a bit of a problem, for the "Dingo market" among zoological parks seems to be pretty well saturated.

Members of the Zoological Society take a second look at the animals at the Waldorf during the Members' Meeting on the evening of January 9. Approximately 2,000 heard Dr. Osborn announce the Society's campaign to raise $7,000,000.

Our pair is partly responsible, for it has produced a total of 50 pups between its arrival on September 29, 1954, and January 1 of this year. Heretofore the pups (one litter as large as 11 and one as small as 5) were always born during the last few days of December, but this time they missed it by one day.

The Dingos came to us from the Taronga Park Zoo in Sydney. For the most part the female has been an excellent mother and she is taking good care of the present litter.

IN BRIEF

Andy's Reducing Diet. It has been all too obvious for a long time that Andy, the Orangutan, is too fat, and when he reached 450 pounds at his routine weighing in October the Mammal Department began doing something about it. Andy is now on a diet of three-quarters of a bucket of fruit and vegetables a day, instead of a full bucket. Deprivation is having some effect, too, for the January weighing recorded him at 415 pounds – a nice drop, but still a long way from the level of about 350 to 375 pounds we would like him to attain. Andy can only be forced to reduce by separating him at feeding time from his companion, Sandra. When the two of them are fed together, Andy invariably takes the most and the best of the food.

Vandalism Again. The two best-known Penguins in the collection – indeed, the only two that have been known by pet names – have both been killed by vandals. "Annie," the celebrated Black-foot Penguin from the old Aquarium (who turned out to be a male, incidentally), was killed in February of 1959, and in December of this past year his mate, "Andy," (a female) was stoned to death.

Quicker than the Eye. Attempting to photograph the "strike" of the deadly Stonefish at the Aquarium – for its bite, when it snaps up its food, resembles the strike of a rattlesnake – Staff Photographer Dunton set his camera to take pictures at the rate of 64 frames a second instead of the normal 24 frames. He got a picture of a bite, all right, but it appeared on only four of the 64

frames, from the first opening of the fish's mouth and its spring forward until the prey had been engulfed and the fish had returned to its resting position. This indicates a speed of $\frac{1}{16}$th of a second for the whole operation.

Nyala Herd Is Growing. The last weeks of the year usually bring an increase in our herd of Nyalas and this past year-end was no exception; three of these lovely antelopes were born in December and more are expected. The present herd of 18 Nyalas gives promise of a spectacular show on the African Plains next spring. It is probable that this is the finest Nyala herd in any zoo.

PUBLICATIONS OF INTEREST

A FIELD GUIDE TO THE BIRDS OF TEXAS by Roger Tory Peterson, published by Houghton Mifflin Company for the Texas Game & Fish Commission. Obtainable only from the Commission—$3.00.

Texas has by far the largest avifauna of any of the fifty states. In this guide, Mr. Peterson covers all 542 species. Sixty full-page plates, including 36 in color, are based on patternistic drawings that indicate key field marks with arrows. This addition to the familiar Peterson Field Guide Series is recommended to everyone with an interest in North American birds. – G. W. M.

THE MUSEUM AT GHOST RANCH. A Pioneer Outdoor Interpretive Project in New Mexico. Bulletin No. 1. By William H. Carr. 36 pp., many illus. Charles Lathrop Pack Forestry Foundation, Washington, D. C., 1960.

William H. Carr will be remembered by many persons in the New York area for the pioneering work he did with nature trails and trailside museums at Bear Mountain State Park. In recent years he has been developing his ideas even more ambitiously in the Southwest – first with the Arizona-Sonora Desert Museum in Tucson and now with the Museum at Ghost Ranch 65 miles northwest of Santa Fe on U. S. Highway 84.

The Charles Lathrop Pack Forestry Foundation of Washington built the Ghost Ranch Museum, and Carr expresses its purposes in his new descriptive booklet: "We built the Museum in this untenanted but well visited region to inform the people of their country, of its vanishing wildlife, grass, water and soil, its wonders of life, past and present, and rehabilitation possibilities for the land in the future."

The booklet is a typical "Bill Carr production" – easy and informal in style, informative and convincing – which reflects Carr's lifelong and effective efforts to make Americans love and understand the out-of-doors as much as he does. – W. B.

New Members of the New York Zoological Society

(Between November 1 and December 31, 1960)

Patron
Edward Marshall Boehm

Life
Hugh Trumbull Adams
Mrs. Armand P. Bartos
Mrs. J. Seward Johnson, Jr.

Contributing
George Abbott
E. Farrar Bateson, Jr.
George Payne Bent, II
Dr. Charles N. Breed, Jr.
Catello H. Buonocore
Mrs. Frederick R. Childs
Gilmore D. Clarke
Mrs. Lincoln Cromwell
R. A. Daalmeyer
George Dock, Jr.
Morris Fisher
Randolph A. Hearst
Mrs. Walter Hirshon
Mrs. Frederick K. Hollister
Master George Kenizelos
James G. Leonard
Mrs. B. J. Levy
Madison H. Lewis
Mrs. Albert P. Loening
Dr. M. J. Markham
Mrs. Woodle Marsh
Edward K. Mosenthal
Mrs. A. Henry Mosle
Miss Isabel M. Peters
Mrs. Malcolm Pitt
Mrs. Marshall Prentiss
De Haven Ross
Mrs. Edward R. Schwartz
Mrs. Elsa van der Boon
Dr. Rients Van der Woude
George Van Gorder
Mrs. B. P. E. Wolbarst

Annual
Robert Bartram
Miss Roberta S. Bernhardt
Mrs. Theodore Birnbaum
Frederick Blumenstein
Miss Alouise Boker
Benjamin Brague
Dr. Philip W. Brickner
George Cadra
Mrs. Sol Cohen
Miss Frances d'Atri
Albert Feininger
Charles Marden Fitch
Miss Margaret Flanagan
Mrs. Forrest C. Haring
Mrs. Marcia C. Harty
William Henry Hyde
Dr. Howard E. Katz
William A. Kent
Mrs. Nancy S. Kohlberg
Eugene M. Krader
Miss Marion Kranz
Miss E. Joy Krotinger
Louis R. Lau
Miss Lucy P. Lobo
Mrs. Herbert Loebel
William Matteson
David Drew Meltzer
Stanley Newhouse
Daniel J. O'Connell
George B. Orach
Egon Paschkes
Capt. Nelson R. Perry
Master William Barron Porter
Kenneth Rees
Barry Jon Ross
Fred A. Salazar
Melvin Schachter
Russell Schroeder, Jr.
Mrs. Sylvia Sechter
Mrs. Jeffrey Shannon
Mrs. Vivian Sherman
Bernard Starr
Mrs. George P. Thomas
Capt. Robert D. Valentine
Mrs. M. Y. Van Wagoner
Michael A. Wainfeld
Conrad Waldinger
Miss Frances Weiss
Irving Winter
Arthur H. Wolf
Mrs. Leo Wolman
Charles G. Young

The Once and Future Cheetah

NO ONE, not even Mr. T. H. White, actually saw Merlyn transform Wart into the gentle Cheetah that presided at the Annual Members' Meeting at the Waldorf, so we persuaded Curator Joe Davis to make the drawing above. Maybe it didn't happen just the way Davis pictures it, but magic was certainly there, as real and palpable as Merlyn himself.

It's probable that Merlyn would have wanted Wart to be the Cheetah at the Waldorf, if there had been a Waldorf or Cheetahs in the time of the great once and future king. For it would certainly add to Wart's education to learn how it feels to be the admired and honored guest of our distinguished group of lovers and protectors of animals.

Of course, all of us can't be Wart and find out at first hand how an animal feels. Obviously, then, the next best thing is to learn—even at second hand—all we can about them.

To do this, there is no better way than Membership in the New York Zoological Society—and we hope you'll tell all your friends about it and ask them to join us at the first possible moment.

GORDON CUYLER
Membership Chairman

NEW YORK ZOOLOGICAL SOCIETY
FOUNDED 1895